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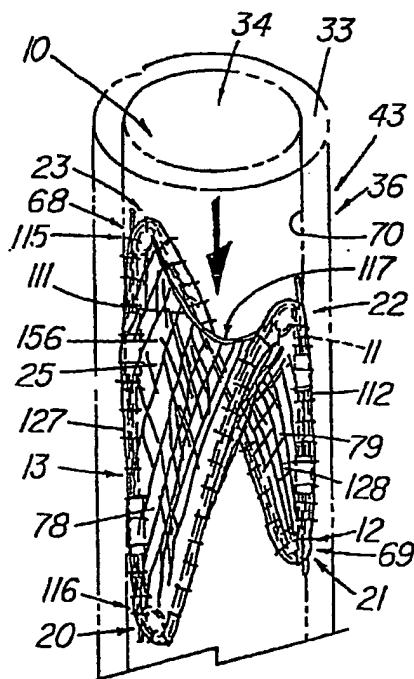
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[Continued on next page]

(54) Title: **IMPLANTABLE VASCULAR DEVICE**



(57) Abstract: A multiple-sided medical device (10) comprises a frame (11) comprising wire or other resilient material and having a series of bends (12) and interconnecting sides. The device is pushed from a delivery catheter into the lumen of a duct or vessel and may include one or more barbs (16) for anchoring purposes. A full or partial covering (45) of fabric or other flexible material such as DACRON, PTFE, or a collagen-based material such as small intestinal submucosa (SIS), may be sutured or attached to the frame to form an occlusion device (51), a stent graft (75), or an implantable, intraluminal valve (43) such as for correcting incompetent veins in the lower legs and feet.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
L,X	WO 99 62431 A (COOK INC) 9 December 1999 (1999-12-09) the whole document ---	1-11
X	EP 0 856 300 A (VENPRO CORP) 5 August 1998 (1998-08-05) the whole document ---	1-6,8
A	---	9-11
X	EP 0 667 133 A (CAMILLI SANTE) 16 August 1995 (1995-08-16) column 4, line 22 -column 8, line 4; figures ---	1-4,7,8
A	---	9-11
X	WO 93 13712 A (UNIV MINNESOTA) 22 July 1993 (1993-07-22) figures ---	9-11

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 920 842 A (KARPENKO VLADIMIR LEONIDOVICH ;KRUCHININ BORIS PETROVICH (RU)) 9 June 1999 (1999-06-09) abstract; figures	9-11
A	---	1,8
A	US 4 994 077 A (DOBBEN RICHARD L) 19 February 1991 (1991-02-19) column 2, line 28 - line 54; figures -----	1-3,7,9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/03766

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9962431	A	09-12-1999	AU 4412799 A EP 1087727 A1 WO 9962431 A1 US 6200336 B1 US 2001011187 A1	20-12-1999 04-04-2001 09-12-1999 13-03-2001 02-08-2001
EP 0856300	A	05-08-1998	NL 1004827 C2 EP 0856300 A1 US 6287334 B1	19-06-1998 05-08-1998 11-09-2001
EP 0667133	A	16-08-1995	EP 0667133 A1 AT 199490 T DE 69330003 D1 DE 69330003 T2 ES 2157918 T3 US 5607465 A	16-08-1995 15-03-2001 12-04-2001 04-10-2001 01-09-2001 04-03-1997
WO 9313712	A	22-07-1993	CA 2128338 A1 DE 69324239 D1 DE 69324239 T2 EP 0623003 A1 EP 0876793 A2 ES 2133382 T3 JP 7502918 T US 5334217 A WO 9313712 A1 US 6077281 A US 5578045 A US 6077291 A	22-07-1993 06-05-1999 04-11-1999 09-11-1994 11-11-1998 16-09-1999 30-03-1995 02-08-1994 22-07-1993 20-06-2000 26-11-1996 20-06-2000
EP 0920842	A	09-06-1999	RU 2108070 C1 AU 3364897 A EP 0920842 A1 US 6036716 A WO 9801086 A1	10-04-1998 02-02-1998 09-06-1999 14-03-2000 15-01-1998
US 4994077	A	19-02-1991	NONE	